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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/692,397 | 10/23/2003 | Jacob Cherian | 016295.1469 (DC-05355) | 8479 |
| 23640 | 7590 | 10/06/2006 | EXAMINER ROJAS, MIDYS | |
| BAKER BOTTS, LLP 910 LOUISIANA HOUSTON, TX 77002-4995 | | | ART UNIT 2185 | PAPER NUMBER |

DATE MAILED: 10/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|--------------------------------|--|
| Office Action Summary | Application No. 10/692,397 | Applicant(s) CHERIAN, JACOB | |
| | Examiner Midys Rojas | Art Unit 2185 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10-12 and 14-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-12, and 14-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on 6/23/06 have been fully considered but they are not persuasive.

Applicant argues that Horst does not teach "returning a success status before further processing of data associated with a write operation" since Horst is concerned with returning completion interrupts after a disk cache containing data associated with write operations is written out to storage. However, Horst also discloses embodiments in which the host is informed of a successful write after the data has been written in cache but **before** it is written to the disk ("existing systems are typically configured such that the host is informed that a write has been completed once the write data has been written to a write cache of a disk drive or an array controller... but before the data has been written to disk", Col. 1, line 20-33).

Claim Objections

2. Claim 14 objected to because of the following informalities:

The dependency of Claim 14 is incorrect. Claim 14 appears to depend from itself. For the purposes of examination, the examiner has interpreted Claim 14 as depending from Claim 12. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

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international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-8, 10-12, and 14-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Horst et al. (6,549,977).

Regarding Claim 1, Horst discloses a method for volume manager based redundant array of independent disks creation (RAID, this system allows for the reduction of RAID rebuilding time, abstract), comprising:

obtaining information on a data portion of a disk RAID volume (cache 132 receives data received from host before it has been written thus obtaining information that belongs in a data portion of a disk RAID volume, Col. 5, lines 48-53);

monitoring input/output (I/O) operations (by array controller 124, steps 202-216, Figure 2, Col. 8, line 40- Col. 9, line 42) between an information handling system volume manager (I/O transfer and host interface circuitry 130) and an information handling system disk driver (122);

intercepting I/O operations between the volume manager and the disk driver (by array controller 124);

if an intercepted I/O operation is a write operation to the data portion of the RAID volume, returning a success status to a requesting application before taking further action with respect to write data associated with the write operation (“existing systems are typically configured such that the host is informed that a write has been completed once the write data has been written to a write cache of a disk drive or an array controller... but before the data has been written to disk”, Col. 1, line 20-33);

if an intercepted I/O operation is a read operation of the data portion of the RAID volume, returning a zeroed buffer to a requesting application (zeros can be returned, Col. 3, lines 34-38).

Regarding Claim 2, Horst discloses the method further comprising initializing creation of a parity based RAID wherein RAID-5 is a parity based RAID (Col. 5, lines 35-38).

Regarding Claim 3, Horst discloses the method further comprising creating a RAID-5 parity based RAID (Col. 5, lines 35-38).

Regarding Claim 4, Horst discloses an information handling system, comprising
at least one processor (124);
a memory operably associated with the processor (cache 132);
at least three information storage devices operably coupled to the memory and the processor (110); and

a program of instructions storable in the memory and executable by the processor, the program of instructions operable to intercept input/output (I/O) operations during creation of a redundant array of independent disks (RAID, this system allows for the reduction of RAID rebuilding time, abstract) on the information storage devices (interception being done by array controller 124, steps 202-216, Figure 2, Col. 8, line 40- Col. 9, line 42), process I/O operations directed to accessing RAID disk structures (increasing write performance, Col. 2, lines 26-38; increasing read performance, Col. 3, lines 34-38), process I/O operations directed to accessing RAID configuration information (access to lookup table within RAM 228 are allowed during system operation, Col. 12, lines 44-57), provide for processing of I/O operations accessing a data portion of the RAID (cache 132 receives data received from host before it has been written, Col.

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5, lines 48-53), and respond to write operations to the data portion with a successful status before further processing write data associated with the write operations (“existing systems are typically configured such that the host is informed that a write has been completed once the write data has been written to a write cache of a disk drive or an array controller... but before the data has been written to disk”, Col. 1, line 20-33).

Regarding Claim 5, Horst discloses the information handling system further comprising the program of instructions operable to intercept I/O instructions between a volume manager 130 and a disk driver of the information handling system 122 (interception being done by array controller 124, steps 202-216, Figure 2, Col. 8, line 40- Col. 9, line 42).

Regarding Claim 6, Horst disclose the information handling system further comprising the program of instructions operable to intercept all I/O operations between the volume manager and the disk driver during RAID creation (see abstract, the method of the invention provides reductions in RAID volume creation times; interception being done by array controller 124, steps 202-216, Figure 2, Col. 8, line 40- Col. 9, line 42).

Regarding Claim 7, Horst discloses the information handling system further comprising the program of instructions operable to verify that the information storage devices have been zeroed (activity bins are zeroed on demand before the first write, thus ensuring that they are zeroed, Col. 3, lines 19-24).

Regarding Claim 8, Horst discloses the information handling system further comprising the program of instructions operable to respond to read operations of the data portion with a zeroed buffer (Col. 3, lines 34-38).

Regarding Claim 10, Horst discloses the information handling system further comprising the program of instructions operable during creation of a parity-based RAID wherein RAID-5 is a parity based RAID (Col. 5, lines 35-38).

Regarding Claim 11, Horst discloses the information handling system further comprising the program of instructions operable during creation of a RAID-5 parity-based RAID (Col. 5, lines 35-38).

Claim 12 is rejected using the same rationale as that of Claims 1 and 4.

Regarding Claim 14, Horst discloses the computer readable medium further comprising the program of instructions operable to return write operations with a good status ("existing systems are typically configured such that the host is informed that a write has been completed once the write data has been written to a write cache of a disk drive or an array controller... but before the data has been written to disk", Col. 1, line 20-33).

Claim 15 is rejected using the same rationale as that of Claim 8 wherein zero is a predefined value.

Claim 16 is rejected using the same rationale as that of Claim 8.

Claim 17 is rejected using the same rationale as that of Claim 5.

Regarding Claim 18, Horst discloses the computer readable medium further comprising the program of instructions operable to pass to the disk driver for processing, I/O operations associated with configuration of the RAID (access to lookup table within RAM 228 are allowed during system operation, Col. 12, lines 44-57).

Regarding Claim 19, Horst discloses the computer readable medium further comprising the program of instructions operable to pass to the disk driver for processing, I/O operations

concerning RAID disk structures (access to lookup table within RAM 228 are allowed during system operation, Col. 12, lines 44-57).

Claim 20 is rejected using the same rationale as that of Claim 11.

Regarding Claim 21, Horst discloses the method further comprising, if an intercepted I/O operation is a non-data portion access I/O operation, passing the non-data portion access I/O operation to the disk driver for processing (access to lookup table within RAM 228 are allowed during system operation, Col. 12, lines 44-57).

Regarding Claim 22, Horst discloses the method further comprising, wherein responding to write operations to the data portion with a successful status before further processing write data ("existing systems are typically configured such that the host is informed that a write has been completed once the write data has been written to a write cache of a disk drive or an array controller... but before the data has been written to disk", Col. 1, line 20-33) comprises responding to write operations to the data portion with a successful status before passing the write data to a next driver (before writing the data to the disk).

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Midys Rojas whose telephone number is (571) 272-4207. The examiner can normally be reached on M-F 5:30am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sanjiv Shah can be reached on (571) 272-4098. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

September 26, 2006


Midys Rojas
Examiner
Art Unit 2185

MR


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